Hand Signal Recognition for Automatic Picture Taking

EE 368 Digital Image Processing
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1 Basic Description

The main idea of our project is to make use of the Android phone to try and recognize predetermined signals in order to automatically take photos. Often, when we want to take group photos either using a tripod or when there is no one around to help us, we have to set the timer on the camera and quickly run into the view of the picture being taken. If we want to take multiple shots, the camera operator will have to make multiple trips back to the camera, and this is a little inconvenient. In this project, we hope to be able to get the camera on the Android to detect that a signal has been given by the people in the picture and automatically start a countdown to snap a photograph.

2 Implementation

Ideally, the signal could be given in any part of the picture. However, in our implementation, we will only be looking for the signal at a specific location. We will first locate the faces in the picture. Then we will look for the specific hand signal, for example, a few inches below the head. We believe that this will help to reduce the amount of background noise that could result in a false positive, causing the camera to take a picture when the people in it are not yet ready. Also, we will explore using simple, regular hand postures such as a rectangle made with both hands. Thus, we expect to use facial recognition algorithms as well as some morphological image processing in order to accomplish our goals.

We will first implement the recognition algorithm in Matlab. Once we are successful, we will move on to real-time implementation on the Android phone.

References

